there is no reactive force that is perpendicular to the longitudinal axis of the elongated member at that point.

Conventional impact instruments (e.g., hammers) tend to have an ideal pivot point that does not coincide with pivot point 16 when held by the typical user. That is, during normal use the center of percussion does not typically coincide with the center of the impact surface of a conventional impact instrument (e.g., hammer), which tends to make use of the impact instrument (e.g., hammer) inefficient and uncomfortable. The amount of vibration felt by the user tends to increase as the vertical distance between the actual pivot point and the ideal pivot point increases. In most conventional hammers, for instance, the ideal pivot point is often displaced from the actual pivot point in a direction toward head 12. For hammers that weigh about 1-2 pounds, the ideal pivot point is frequently between about 0.3 cm and about 3.0 cm removed from the actual pivot point.

During use of a hammering device, it is generally desirable to grasp the hammer at a location such that at least a portion of the hand is proximate or at least in the vicinity of the end 17 of the hammer as shown in Figure 1. Grasping the hammer proximate the end allows the user to impart a given impulse to a target object with relatively less effort than if the hammer is grasped at a location that is higher up on the shank in a direction towards the head. If the hammer were grasped at the ideal pivot point of a conventional hammer, the "moment length" between the hand and the impact surface would be shortened, tending to result in more inefficient use of the hammer.

It is desirable that an improved impact instrument be derived to deliver a greater impulse and reduce vibration and shock imparted to the user of the device.

U.S. Patent No. 4,870,868 relates to a sensing device that produces a response when the point of impact between an object and a member occurs at a preselected location on the member.